

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2012PCT	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/NZ2004/000304	International filing date (day/month/year) 26 November 2004	Priority date (day/month/year) 26 November 2003
International Patent Classification (IPC) or national classification and IPC		
Int. Cl.		
<i>A23N 12/02</i> (2006.01) <i>B08B 1/04</i> (2006.01) <i>A22C 29/00</i> (2006.01) <i>F16H 7/02</i> (2006.01)		
Applicant WYMA ENGINEERING (NZ) LIMITED et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 20 June 2005	Date of completion of this report 29 March 2006
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer KURT TOBLER Telephone No. (02) 6283 2469

Box No. I Basis of the report

1. With regard to the language, this report is based on:
- ☒ The international application in the language in which it was filed
- ☐ A translation of the international application into _____, which is the language of a
- ☐ international search (under Rules 12.3(a) and 23.1 (b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1, 2, 4-7 as originally filed/furnished
- pages* 3 received by this Authority on 24 March 2006 with the letter of the same.
- pages* received by this Authority on with the letter of
- ☒ the claims:
- pages as originally filed/furnished
- pages* as amended (together with any statement) under Article 19
- pages* 8 received by this Authority on 24 March 2006 with the letter of the same.
- pages* received by this Authority on with the letter of
- ☒ the drawings:
- pages 1 as originally filed/furnished
- pages* received by this Authority on with the letter of
- pages* received by this Authority on with the letter of
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-7	YES
	Claims	NO
Inventive step (IS)	Claims	YES
	Claims 1-7	NO
Industrial applicability (IA)	Claims 1-7	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

Citations:

- (a) US 4068574
- (b) "Machine Design: Theory and practice", pages 660-661, 668-669, Aaron D. Deutschman (et al.), MacMillan Publishing co., Inc., (NY) 1975, ISBN 0023290005
- (c) "The student engineer's companion", pages 71-72, J. Carvill, Butterworth & Co (Publishers) Ltd, (Norfolk, GB), 1980, ISBN 040800438X

Inventive Step (IS) Claims 1-7

Citation (a) discloses a drive mechanism for food handling/processing equipment. It discloses at column 5, line 56 that it can be used in a horizontal attitude, in which case it would have a horizontally orientated rotating barrel with a plurality of shafts (7) aligned with their longitudinal axes parallel to the longitudinal axes of the barrel; and the drive mechanism includes a single motor (37) adapted to drive a V belt drive (34) and a V belt timing belt slave (40) (via transmission 35), to yield a constant speed and shared load to the shafts (see column 3, line 2-5).

The use of separate V belts or a single multi V belt in place of a normal V belt is well known and obvious to a person skilled in the art of power transmission, and is normally done when higher power is to be transmitted, as is mentioned, for example, on page 71 of citation (c).

The use of a toothed timing belt for timing is also well known and obvious to a person skilled in the art of power transmission, and has the advantage of ensuring no slip and constant speed. For example, both citations (b) and (c) mention that this choice of belt is the normal choice for the application of timing.

Hence there is no inventiveness in substituting known belts, using their preferred design roles, into the known device of citation (a), and therefore a lack of inventive step exists.

alternative lower cost drive mechanism for known and new equipment which at least offers a useful alternative choice.

Further objects and advantages of the invention will become apparent from the
5 following description which is given by way of example only.

Summary of the Invention

According to a broadest aspect of the invention there is provided a drive mechanism
10 for food handling, food processing and cleaning equipment incorporating a generally horizontally orientated rotating barrel in which are mounted a plurality of shafts aligned with their longitudinal axes parallel to the longitudinal axis of the barrel, the drive mechanism including a single motor adapted to drive by way of separate V-belts or a single V-belt configured with a plurality of adjacent V shaped surfaces the
15 shafts, the arrangement of the V-belts or V-belt and a toothed timing belt slave yield a constant speed and shared load to the shafts.

According to another aspect of the invention there is provided a drive mechanism for food and produce handling and cleaning equipment incorporating a generally
20 horizontally orientated rotating barrel in which are mounted a plurality of shafts aligned with their longitudinal axes parallel to the longitudinal axis of the barrel, the drive mechanism including a single drive motor adapted to drive via a gearbox at least some of the plurality of shafts by either a plurality of separate V-belts or a single multi V-belt configured with a plurality of adjacent V shaped surfaces, the
25 arrangement of the V-belt or V-belts and toothed pulleys or sprockets on the shafts driven by timing belt means yields a constant speed and shared load on all of the shafts under the drive of the single drive motor.

Each shaft has a pair of pulleys or sprockets the first of which is driven by the V-belts
30 and the second of which is linked by the timing belt means.

The timing belt can be a toothed belt adapted to drive toothed pulleys or sprockets on each shaft.

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Claims

1. A drive mechanism for food handling, food processing and cleaning equipment incorporating a generally horizontally orientated rotating barrel in which are mounted a plurality of shafts aligned with their longitudinal axes parallel to the longitudinal axis of the barrel, the drive mechanism including a single motor adapted to drive by way of separate V-belts or a single V-belt configured with a plurality of adjacent V shaped surfaces the shafts, the arrangement of the V-belts or V-belt and a toothed timing belt slave yield a constant speed and shared load to the shafts.
2. A drive mechanism for food and produce handling and cleaning equipment incorporating a generally horizontally orientated rotating barrel in which are mounted a plurality of shafts aligned with their longitudinal axes parallel to the longitudinal axis of the barrel, the drive mechanism including a single drive motor adapted to drive via a gearbox at least some of the plurality of shafts by either a plurality of separate V-belts or a single multi V-belt configured with a plurality of adjacent V shaped surfaces, the arrangement of the V-belt or V-belts and toothed pulleys or sprockets on the shafts driven by timing belt means yields a constant speed and shared load on all of the shafts under the drive of the single drive motor.
3. A drive mechanism as claimed in claim 2 wherein each shaft has a pair of pulleys or sprockets the first of which is driven by the V-belts and the second of which is linked by the timing belt means.
4. A drive mechanism as claimed in any one of claims 1 to 3 wherein the timing belt means is a toothed timing belt adapted to drive toothed pulleys or sprockets on each shaft.
5. A drive mechanism as claimed in any one of claims 1 to 3 wherein a single timing belt is provided to drive toothed pulleys or sprockets on all of the shafts.
6. A drive mechanism as claimed in claim 2 and substantially as hereinbefore described with reference to the accompanying drawing.
7. A rotary barrel brush washer including the drive mechanism claimed in claim 1 or claim 2 and substantially as hereinbefore described with reference to the accompanying drawing.